

Notice of Allowability

Application No.

09/893,820

Examiner

Lori A. Clow, Ph.D.

Applicant(s)

CHAPPELL ET AL.

Art Unit

1631

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to the amendment filed 3 June 2004.
2. ☒ The allowed claim(s) is/are 107, 163, 165-179 and 243-251.
3. ☒ The drawings filed on 03 November 2003 are accepted by the Examiner.
4. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) ☐ All b) ☐ Some* c) ☐ None of the:
 1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.
THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

5. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
6. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
 - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
 - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
 - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.

Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
7. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☒ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3. ☒ Information Disclosure Statements (PTO-1449 or PTO/SB/08),
Paper No./Mail Date 3/11/04
4. ☐ Examiner's Comment Regarding Requirement for Deposit
of Biological Material
5. ☐ Notice of Informal Patent Application (PTO-152)
6. ☐ Interview Summary (PTO-413),
Paper No./Mail Date _____.
7. ☒ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other _____.

DETAILED ACTION

Examiner's Amendment

An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview with Thomas Haag on 18 August 2004.

The application has been amended as follows:

In the Specification:

Please replace the ~~following~~ paragraph after the title on page 1 of the application:

*with the following
paragraph*

--This application is a divisional of and claims priority under 35 U.S.C. §120 to U.S.

*ms
8/19/04*

Application No. 09/398,395, now U.S. Patent No. 6,468,772, filed September 17, 1999, which claims benefit under 35 U.S.C. §119(e) of U.S. Provisional Application No. 60/150,262, filed August 23, 1999, and U.S. Provisional Application No. 60/100,993, filed September 18, 1998.--

In the Claims:

Please amend claim 107 as follows:

--An isolated synthase having a region with 40% or greater sequence identity to residues 579 to 847 of SEQ ID NO: 44, wherein one or more amino acid residues of said synthase that align with amino acids at positions 584, 587, 606, 609, 610, 688, 713, 714, 715, 716, 719, 753,

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757, 831, 834, 835, 839, 841, and 842 of SEQ ID NO: 44 are residues other than the following ordered arrangements of residues:

Ordered Arrangement of Residues																			
	584	587	606	609	610	688	713	714	715	716	719	753	757	831	834	835	839	841	842
A	C	W	I	I	S	Y	T	T	T	Y	L	C	D	V	T	Y	D	Y	T
B	C	W	I	I	S	Y	T	T	T	Y	L	C	D	I	T	Y	D	Y	T
C	G	W	I	A	S	Y	T	S	G	Y	L	C	D	M	L	Y	D	Y	T
D	G	W	I	A	S	Y	T	S	G	Y	L	C	D	M	L	Y	D	Y	T
E	C	W	L	T	S	Y	S	A	G	Y	I	A	N	A	L	Y	D	Y	T
F	G	W	L	L	S	Y	S	T	V	H	L	G	D	A	V	Y	D	Y	S
G	C	W	L	T	S	Y	S	A	G	Y	I	A	N	A	L	Y	D	Y	T
H	L	W	I	T	T	Y	S	V	G	N	L	F	D	V	L	Y	D	Y	T
I	P	W	I	V	D	Y	S	T	A	G	L	S	D	A	C	Y	D	Y	T
J	A	W	V	C	G	F	T	S	C	I	M	G	N	C	S	Y	D	Y	T
K	N	F	F	L	G	A	E	I	T	A	T	G	N	I	T	Y	E	F	S
L	C	W	N	I	T	Y	S	I	S	G	M	L	D	A	M	Y	D	F	O
M	S	W	V	L	T	Y	S	S	S	Y	L	G	G	V	L	Y	D	F	T
N	N	F	F	L	V	N	A	T	L	A	L	G	N	L	S	Y	E	F	T
O	C	W	N	I	T	Y	I	S	G	P	L	L	D	A	M	Y	D	F	G
P	C	W	N	V	T	Y	I	G	G	I	L	L	D	A	I	Y	D	Y	T
Q	C	Y	L	L	T	F	A	V	T	M	T	G	N	I	T	Y	D	Y	T
R	C	W	I	I	T	Y	S	I	S	A	I	L	D	A	I	Y	D	H	G
S	S	W	F	I	V	F	S	S	S	V	I	L	N	V	I	Y	D	H	G
T	S	W	I	A	T	Y	S	V	A	S	I	L	D	A	I	Y	D	F	G
U	N	W	N	L	T	Y	S	I	S	S	I	F	N	S	M	Y	D	F	G
V	F	L	A	Q	T	Y	S	I	G	Q	L	S	D	T	I	F	D	F	G
W	I	S	S	T	V	Y	S	I	A	L	V	G	N	M	F	Y	D	L	T
X	Y	L	C	I	T	Y	S	C	G	H	S	L	G	F	G	Y	D	Y	S
Y	G	S	F	I	T	F	S	S	S	V	I	L	N	A	V	Y	D	H	G
Z	Y	W	A	C	T	Y	S	S	G	M	L	G	D	L	I	Y	D	L	Y
AA	A	A	N	L	T	N	A	L	T	S	T	C	M	L	L	Y	D	F	S
BB	F	L	C	V	T	Y	S	S	A	Y	V	L	S	D	I	M	D	F	S
CC	F	W	A	M	T	Y	N	T	G	M	L	S	D	I	M	Y	D	Y	T
DD	Y	M	C	V	T	F	V	S	S	G	I	L	G	F	V	Y	D	Y	T
EE	V	S	G	Q	V	Y	S	V	G	L	C	W	N	V	F	Y	D	F	T
FF	C	S	G	T	T	M	S	F	A	L	I	G	N	L	F	Y	D	F	T
GG	C	S	G	T	T	M	S	F	A	L	I	G	N	L	F	Y	D	F	T
HH	C	A	G	T	T	M	S	F	A	L	I	G	N	V	F	Y	D	Y	T
II	I	W	V	I	S	Y	T	T	G	L	V	I	N	T	S	Y	D	Y	T
JJ	Y	W	A	C	T	Y	S	S	G	M	L	G	D	L	I	Y	D	L	Y
KK	C	W	I	I	S	Y	T	S	T	Y	L	C	D	V	T	Y	D	Y	T
LL	C	W	I	I	S	Y	T	T	T	Y	L	C	D	I	T	Y	D	Y	T
MM	C	W	N	I	T	Y	S	I	S	G	M	L	D	A	M	Y	D	Y	G
NN	F	A	A	Q	T	Y	S	I	G	Q	L	S	D	T	I	F	D	F	G
OO	F	A	I	A	T	Y	S	V	A	S	I	L	D	A	I	Y	D	F	G

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Reasons For Allowance

The closest prior art to the claimed invention is represented by Back et al. (PNAS USA 1996 Vol. 93 pages 6841-6845.) The claims are drawn to methods of making modified polypeptides wherein the polypeptides to be modified have a certain level of homology to SEQ ID NO: 44, and are to be modified at particular residues, as set forth in the claims. The polypeptide of SEQ ID NO: 44 is a taxadiene synthase. While polypeptides similar to SEQ ID NO: 44 are known in the art, there is no motivation to modify the particular residues set forth in the claims. The closest art of record (Back et al.) swaps entire domains of a similar enzyme, and not particular residues.

Inquiries

Papers related to this application may be submitted to Technical Center 1600 by facsimile transmission. Papers should be faxed to Technical Center 1600 via the PTO Fax Center located in Crystal Mall 1. The faxing of such papers must conform with the notices published in the Official Gazette, 1096 OG 30 (November 15, 1988), 1156 OG 61 (November 16, 1993), and 1157 OG 94 (December 28, 1993) (See 37 CFR § 1.6(d)). The CM1 Fax Center number is either (703) 308-4242, or (703) 308-4028.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Lori A. Clow, Ph.D., whose telephone number is (571) 272-0715. The examiner can normally be reached on Monday-Friday from 10 am to 6:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael P. Woodward, Ph.D., can be reached on (571) 272-0722.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to (571) 272-0547.

Patent applicants with problems or questions regarding electronic images that can be viewed in the Patent Application Information Retrieval system (PAIR) can now contact the USPTO's Patent Electronic Business Center (Patent EBC) for assistance. Representatives are available to answer your questions daily from 6 am to midnight (EST). The toll free number is (866) 217-9197. When calling please have your application serial or patent number, the type of document you are having an image problem with, the number of pages and the specific nature of the problem. The Patent Electronic Business Center will notify applicants of the resolution of the problem within 5-7 business days. Applicants can also check PAIR to confirm that the problem has been corrected. The USPTO's Patent Electronic Business Center is a complete service center supporting all patent business on the Internet. The USPTO's PAIR system provides Internet-based access to patent application status and history information. It also enables applicants to view the scanned images of their own application file folder(s) as well as general patent information available to the public.

August 18, 2004
Lori A. Clow, Ph.D.
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Lori A. Clow

Marianne P. Allen
MARIANNE P. ALLEN
PRIMARY EXAMINER
8/19/04

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